Section 2

Study Area & Planning Considerations

SECTION 2
STUDY AREA & PLANNING CONSIDERATIONS

2.1. Study Area

Philomath is situated north of the Marys River near the center of Benton County. The City is located on Highway 20/34 approximately five miles west of Corvallis. The Corvallis-Newport Highway 20/34 bisects Philomath east to west and provides the major road transportation into and through the City. Within the City, highway 20/34 is designated as Main Street. Other major roads include Green Road and West Hills Road entering the City from the north, and Fern Road and Bellfountain Road entering the City from the south. The Union Pacific Railroad (formerly Southern Pacific Railroad Co.) also has a rail line passing through the City.

The City's Comprehensive Plan was developed in 1983 and updated in 2003. The Comprehensive plan established a large urban growth boundary (UGB) which encompasses 2,560 acres, approximately 1,753 of which are outside the present City Limits. Eventually the entire area will be part of Philomath and will be served by the City's utility systems.

This report is based on the assumption that there will be no significant changes to the Urban Growth Boundary or zoning. The planning area of this report is limited to the land within the present UGB of the City. The improvements recommended in this plan are based on development of land within the UGB in its present location, as well as the existing land use zoning for these areas. It is assumed that no significant development will occur within the study area that will require major changes to the existing zoning, and that there will be no significant expansions of the UGB within the study period. Changes in any of these assumptions could change the recommendations contained in this facilities plan. Should significant changes in any of the above occur, the facilities and master plan should be updated accordingly.

2.2. Physical Environment

2.2.1 Climate and Rainfall Patterns

The study area is located in the Willamette Valley along the eastern foothill of the coast range. The climate in Philomath is relatively mild throughout the year, characterized by cool, wet winters and warm, dry summers. Growing seasons in the Willamette Valley are long, and moisture is abundant during most of the year (although summer irrigation is common).

The study area has a predominant winter rainfall climate. Typical distribution of precipitation includes about 50 percent of the annual total from December through

February, lesser amounts in the spring and fall, and very little during summer. Rainfall tends to vary inversely with temperatures -- the cooler months are the wettest, the warm summer months the driest.

Extreme temperatures in the study area are rare. Days with maximum temperature above 90°F occur only 5-15 times per year on average, and below 0°F temperatures occur only about once every 25 years. Mean high temperatures range from the low 80s in the summer to about 40°F in the coldest months, while average lows are generally in the low 50s in summer and low 30s in winter.

Although snow falls nearly every year, amounts are generally quite low. Willamette Valley floor locations average 5-10 inches per year, mostly during December through February. High winds occur several times per year in association with major weather systems.

Relative humidity is highest during early morning hours, and is generally 80-100 percent throughout the year. During the afternoon, humidities are generally lowest, ranging from 70-80 percent during January to 30-50 percent during summer. Annual evaporation is about 35 inches, mostly occurring during the period April through October.

Winters are likely to be cloudy. Average cloud cover during the coldest months exceeds 80 percent, with an average of about 26 cloudy days in January (in addition to 3 partly cloudy and 2 clear days). During summer, however, sunshine is much more abundant, with average cloud cover less than 40 percent; more than half of the days in July are clear.

There are extensive weather records for Hyslop Field between Corvallis and Albany. While the data from this weather station is not specifically for the City of Philomath, these values are generally believed to be representative for the immediate area around Philomath. Although there may be daily and weekly variations, the annual average climate is approximately the same. The climate data from Hyslop Field is used throughout the remainder of this document.

The study area receives an average of approximately 43.5 inches of precipitation annually, with the majority of the rainfall occurring during the winter months. The wettest year (since 1910) was 1996 when approximately 73 inches of rainfall was measured. The second wettest year was 1998, with approximately 60 inches of rainfall. Approximately 78% percent of the annual precipitation occurs between November 1 and April 30.

Based on the isopluvials of 24-hour precipitation from the NOAA Atlas 2, Volume X (Oregon), Figure 26, the 5-year 24-hour rainfall for the study area is approximately 3.8 inches. The other two rainfall statistics applicable to the facilities plan are the monthly precipitation amount from May with a 10% probability of exceedence

(3.49") and the monthly precipitation amount for January with an 20% probability of exceedence (11.01").

2.2.2 Topography

Philomath is located on the western edge of the Willamette Valley, near the point the where Marys River leaves the Coast Range. The City center is located on the second bench north of the Marys River. The natural surface drainage across the study area flows to the south, and the existing storm drainage system intercepts and routes flow into the Marys River.

The topography within the study area ranges from relatively flat south of Main Street and along Newton Creek, to steeper slopes and hills to the north, east and west of the City. Generally, the topography is gently sloping and undulating. Slopes over most of the area are between 0 and 3 percent. The northwest part of Philomath has steeper slopes ranging to 14 percent. The elevation within the study area ranges from approximately 260 feet along the Marys River to a high point of 450 feet at the northwestern corner of the UGB.

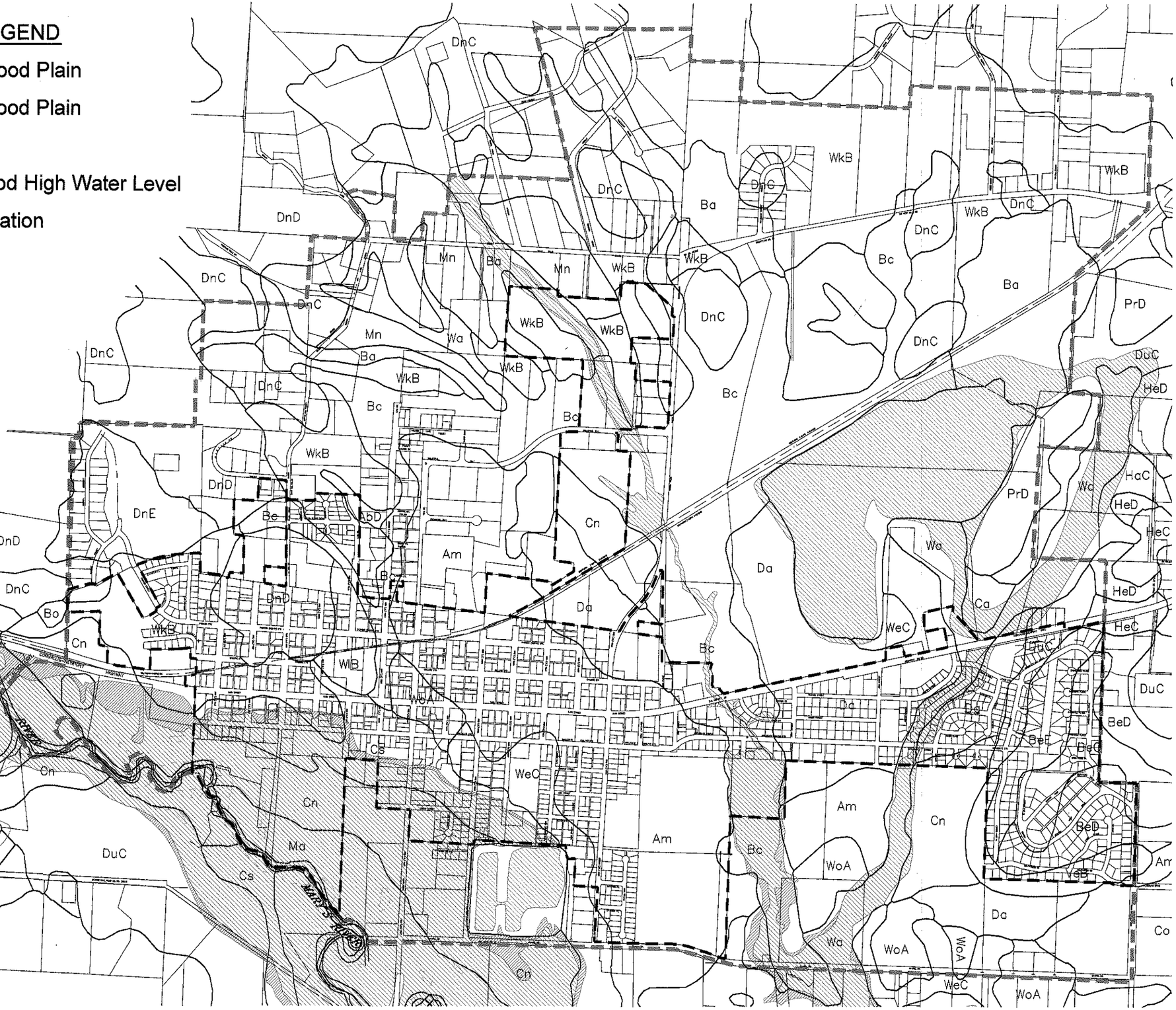
2.2.3 Soils

The 1985 Sewer Systems Facilities Plan and the 1996 Local Wetlands Inventory contain detailed discussions of the soils and geology within the UGB. These discussions on soil types are based from reports and maps prepared by the Soil Conservation Service (now the Natural Resource Conservation Service) showing the approximate locations of the Benton County soil types. The soil types found in the study area are shown in **Figure 2-1**. The reader is referred to the Benton County Soil Survey for detailed definitions and descriptions of the individual soil designations shown in **Figure 2-1**.

Although a detailed analysis of the soils and geology is outside the scope of this report, one soil characteristic evaluated by the Soil Conservation Service and these later reports was the surface drainage capacity. Two the five major soil associations within the study area possess poor surface drainage characteristics. These soils occur in much of the eastern part of Philomath, (between and on either side of both channels of Newton Creek) and along Hwy 20. Although poorly drained soils occur in a significant portion of the City within the planning area, including most of the industrial zoned areas, the undeveloped areas north of the City generally consist of moderately well drained soils. The importance of this to this report is to emphasize that the soil infiltration capacity within the developable portions of the study area is limited at best, particularly during the late winter months after the ground has become saturated. These poor drainage characteristics result in high groundwater tables and form the basis for the I/I values used in this study and in the City's adopted design standards.

FLOOD & SOIL LEGEND

- FEMA 100 Year Flood Plain
- FEMA 500 Year Flood Plain
- February 1996 Flood High Water Level
- XyZ — Soil Survey Designation
- CITY LIMITS
- URBAN GROWTH BOUNDARY



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CITY OF PHILOMATH
2003 SANITARY SEWER FACILITIES PLAN

SOILS, FLOODWAY & FLOODPLAIN

FIGURE
2-1

JOB NUMBER
960.3130.0

2.2.4 Geologic Hazards

Known geologic hazards within the study area include steep slopes, high seasonal groundwater, flooding, and seismic concerns.

2.2.4.1 Steep/Unstable Slopes.

The only areas of potential slope stability concerns within the study area are on Neabeack Hill in the southeast corner of town. Steep slopes can have the potential for either mass movement or slope erosion. Mass movement results from shifting of rock or soil material in response to gravity, such as landslides and rock slides. These mass movements are often precipitated or aggravated by excessive groundwater. Slope erosion is the removal of soils or rock that occurs as a result of sheet flow, resulting in surface erosion or gully erosion. This is primarily caused by private land use practices (mainly land clearing and road construction) that can exacerbate slope erosion.

The 1979 "Engineering Hazard Map of the Corvallis Quadrangle" identifies no steep slope or mass movement hazards within the study area. However, the geologic hazard maps generally do not identify these types of hazards for areas less than 5 to 10 acres. Therefore, although this area shows no signs of recent movement, it is considered a geologically sensitive area for siting critical facilities, such as pump stations or treatment plants.

2.2.4.2 High Groundwater.

As previously discussed, seasonal high groundwater is a common occurrence within the study area, and is a primary cause for the observed high levels of infiltration and inflow. The high groundwater problems are caused primarily by perched water tables due to soil saturation and lack of local drainage.

2.2.4.3 Flooding.

The Marys River is the primary stream within the study area, with Newton Creek being the only major tributary within the study area. The Marys River extends approximately 40 miles from its confluence with the Willamette River to its headwaters northwest of Philomath. Newton Creek, the only major tributary in the study area, enters the Marys River at river mile 10.0. The Marys River has a streamflow pattern similar to other Willamette Valley streams. It is typified by high flows during the winter and low flows during the summer months.

The Federal Emergency Management Agency (FEMA) has established a 100-year floodplain designation and insurance ratings for the study area. While sometimes referred to as the "100 year flood", it is more accurate to consider

it the flood having a 1 percent chance of occurrence in any year, or a 10 percent chance of occurrence during any 10 year period.
During a 100-year flood (as defined by the Federal Emergency Management Association, FEMA), the Marys River and Newton Creek rise out of their normal channels creating a large floodplain. The limits of the 100 and 500 year floodplains as well as the high-water level observed during the February 1996 flood are shown previously on **Figure 2-1**. Flood profiles and maps for those portions of the Marys River adjacent to the study area are included in the Flood Insurance Study prepared for the City of Philomath as follows.

- Inside City Limits
  - Floodway panel 410011-0001, June 15, 1982.
  - FIRM panel 410011-0001 B, June 15, 1982.

- Outside City Limits
  - Floodway panel 410008-0067 (panel 67 of 250), August 5, 1986.
  - Floodway panel 410008-0090 (panel 90 of 250), August 5, 1986.
  - FIRM panel 410008-0067C (panel 67 of 250), August 5, 1986.
  - FIRM panel 410008-0086C (panel 86 of 250), August 5, 1986.
  - FIRM panel 410008-0090C (panel 90 of 250), August 5, 1986.

It should be noted that the Floodplain and Floodway boundaries shown on the FEMA flood maps and the maps enclosed in this report are based on flood elevations, and as such the actual boundaries may vary slightly from the location shown. Final determinations of whether property is within the floodway or floodplain must be determined based on a topographic survey of the property in question.

2.2.4.4 Seismic.

Based on the current building code (Oregon Structural Specialty Code), the study area is classified as Seismic Zone 3 for purposes of structural design. If the wastewater alternative selected by the City includes the construction of buildings or other significant structures, a detailed geotechnical report will be required prior to design. Therefore, a more detailed review of local geology and faulting, as well as seismic and settlement considerations specific to the site selected, will be deferred until the predesign report.

2.2.4.5 Stream Erosion

As is common with most valley bottom streams, the Marys River chanel is continuously eroding and depositing bank material. This is especially prevalent on the outer bends of the river where undercutting and caving of the banks is common within the study area. The potential for streambank erosion is an important design issue that must be carefully considered for facilities sited near the Marys River.

2.2.5 Public Health Hazards

Discussions with City staff have not revealed any known or documented chronic public health hazards within the study area.

2.2.6 Energy Production and Consumption

The proposed wastewater system will not produce any electricity or other energy sources. With regards to energy consumption, the major energy consumers in a wastewater collection and treatment system are the electric motors required to drive pumps, and other equipment. It is recommended that these components be specified as having high or premium efficiency motors, which will reduce the operating costs over the life of the project. Depending on the current programs in place with the electric utility providing service, there may be rebates available if high/premium efficiency electrical motors are specified that will tend to offset the slightly higher capital construction cost.

2.2.7 Water Resources

There are two classes of water resources within the study area, namely surface water and ground water.

2.2.7.1 Surface Water.

Surface water includes all drainage channels that convey storm and surface runoff, up to and including the Marys River. Surface water quality protection is subject to extensive regulation by the State of Oregon. Water quality regulations related to the treatment and disposal of wastewater are summarized in **Section 3** of this report.

2.2.7.2 Groundwater.

Groundwater protection is also important from the standpoint of both natural resource protection and public health protection. The primary groundwater concern relating to wastewater collection and septic systems is the potential for contamination of drinking water wells from sewage or treated effluent. This is the basis for the minimum separation distances between wastewater facilities and groundwater wells.

2.2.8 Flora and Fauna

2.2.8.1 Flora.

The natural vegetation within the study area has been largely replaced by rural residential or agricultural (pasture or seed grass) uses. The area is capable of supporting lowland meadows or forests but to a large extent these have been replaced. Typical native vegetation along lowland foothill areas include such

tree species as Douglas fir, Western Red Cedar, big leaf maple, Vine Maple, California black cottonwood, Pacific yew, ash, Oregon oak, and Hawthorn. Shrubs that can be found are snowberry, indian plum and western hazel. Willows and various grasses are also found in this habitat.

2.2.8.2 Fauna.

A variety of wildlife species are found within the study area. Big game species include black-tailed deer and Roosevelt elk. Several species of birds and small animals are found in and around the study area. Included in this group are ring-necked pheasant, turkeys, grouse, quail, waterfowl, doves, pigeons, and several varieties of song birds.

Forest Cover and riparian areas provide the habitat necessary for most big-game, bird, and small animal species. The agricultural areas within the study area provide feeding and cover for a variety of waterfowl and song birds.

The Marys river and many of its tributaries are important habitat for a variety of fish. Common fish species found include large mouth bass, rainbow trout, coastal cutthroat trout, dace and sculpin as well as anadromous salmonids, including coho salmon, chinook salmon and steelhead.

2.2.9 Air Quality and Noise

2.2.9.1 Air Quality.

The existing air quality in the study area is generally good. Agricultural, slash and field burning can be significant intermittent air pollution sources, primarily during July and August. During cold periods with stagnant air, residential wood heating may impact local air quality. There are no known air quality monitoring stations located within the study area.

2.2.9.2 Noise.

There are no significant generators or sources of noise in the Philomath study area. Noise levels are low and do not exceed DEQ standards. Noise sources within the study area are largely limited to vehicular traffic. None of the alternatives evaluated herein are expected to generate significant noise.

2.2.10 Environmentally Sensitive Areas

2.2.10.1 Riparian Zone.

Riparian zones include the riparian zone adjacent to the Marys River, as well as incidental riparian zones that are a part of the intermittent drainage channels found throughout the study area. Riparian zones are considered

sensitive due to the variety of vegetative and wildlife species that utilize these areas as habitat. Riparian zones provide erosion control, drainage and runoff water quality management, wildlife habitat, and shading for surface waters.

2.2.10.2 Wetlands.

Wetlands are considered to be one of the most biologically productive components of the environment. Their functions and value include primary production, fish and wildlife habitat, flood control, water quality improvement and erosion control and point of entry for groundwater recharge. Detailed wetland surveys or delineations are not included in the scope of this Facilities Plan. However, a cursory overview of previous wetland surveys and related information is presented below.

The methodology for determining wetland areas is based on the Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987), used by the U.S. Army Corps of Engineers and the Oregon Division of State Lands (DSL). The regulatory definition of wetlands in the 1987 Manual requires that, under normal circumstances, positive indicators of wetland hydrology, hydric soil, and hydrophytic vegetation be present. Wetlands are defined as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas, but also include seasonal wet meadows, farmed wetlands and other areas that may not appear "wet" all the time. Wetland determinations consist of documenting three criteria: hydrophytic (water-tolerant) vegetation, hydric (wet) soils, and wetland hydrology.

The Oregon Division of State Lands (DSL) is responsible for developing and maintaining the Statewide Wetlands Inventory (SWI). The inventory consists of two types of inventories - the National Wetlands Inventory (NWI) developed by the U.S. Fish and Wildlife Service and Local Wetlands Inventories (LWI) developed by cities according to standards set by the DSL.

The National Wetlands Inventory (NWI) was developed by the U.S. Fish and Wildlife Service (FWS) and is available statewide. Wetlands and deepwater habitats (streams, lakes, estuaries, etc.) are mapped on a USGS quad map base; most are at a scale of 1:24,000. Only those wetlands and other waters that are visible on high altitude aerial photographs are mapped, and most maps date to the mid-1980s. There are 1,865 maps for Oregon. These maps are available from the Oregon Division of State Lands (DSL).

The relevant National Wetlands Inventory Map for the study area is the Corvallis Quadrangle. This map includes the area south of the Marys River where the treatment plant is located. A copy of this map is included in

Appendix G. These maps show jurisdictional wetlands along and within the study area that had been identified as of that date, including along stream corridors and drainage channels.

Local Wetlands Inventories (LWIs) are comprehensive maps and information about wetlands throughout a city. They supplement the National Wetlands Inventory in urban areas. In 1990, DSL adopted guidelines and rules for conducting LWIs within urban growth boundaries. The LWI rules were updated in February 2001. LWIs are conducted by wetlands consultants for cities completing wetlands planning under Statewide Goals 5 (Natural Resources) or 17 (Coastal Shorelands). The City of Philomath completed a LWI in 1996. The LWI is shown in **Figure 2-2**.

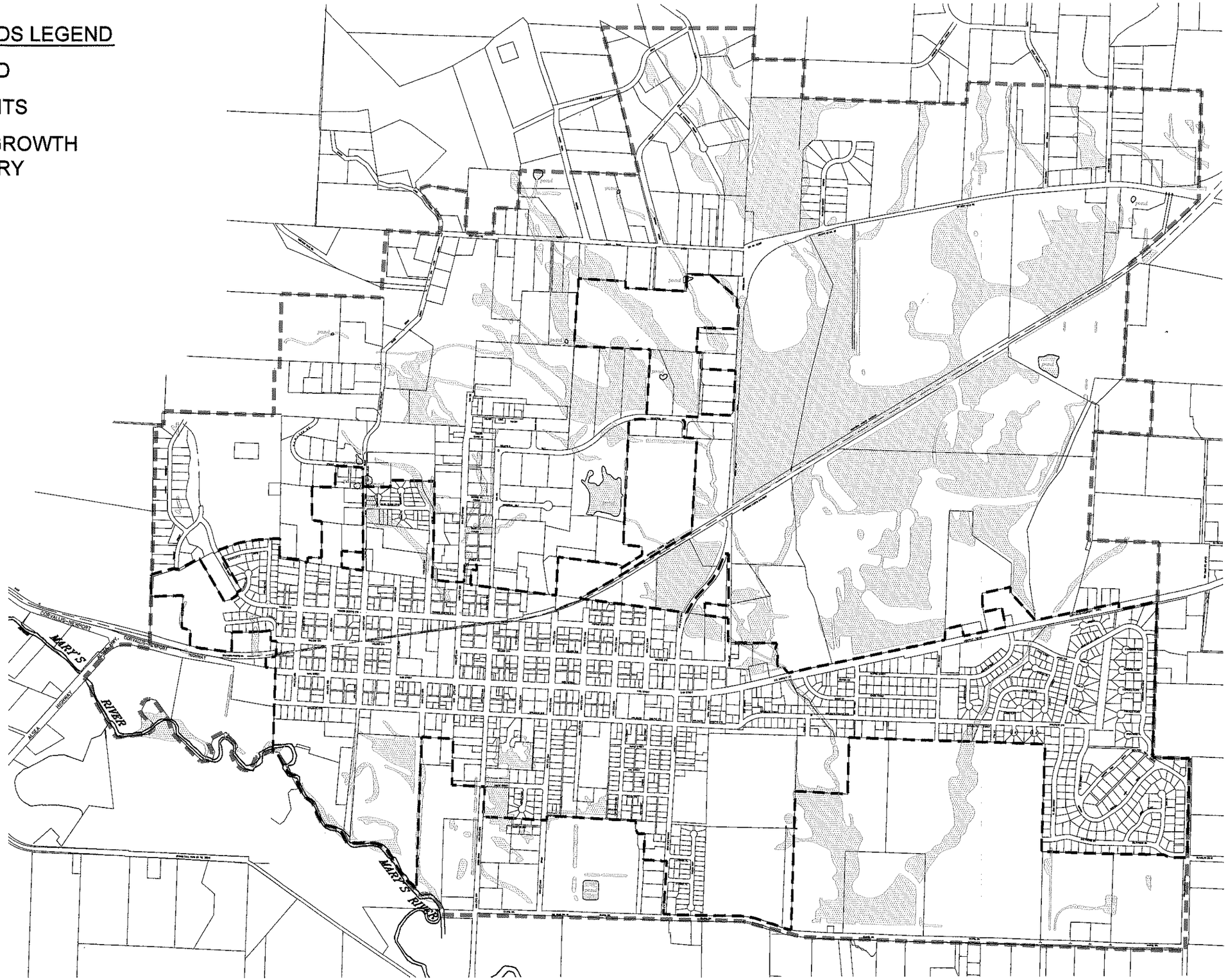
Wetlands affect the facilities planning effort in two ways. First, wetlands decrease the developable land within the UGB. This decreases the density of development at buildout conditions. The second impact involves the construction of sanitary sewer facilities in wetland areas. Construction work that impacts wetland areas is subject to additional permit requirements, and can be prohibited by the magnitude and nature of the impacts.

As discussed in **Section 6**, the projected collection system needs are based on estimate of wastewater flows associated with the complete development of land within the UGB. Clearly, as can be seen in **Figure 2-2**, much of the land within the UGB is wetland. Therefore, not all of the land within the UGB can be developed at the zoned densities. Current regulations allow for the development of wetland areas under the condition that developers undertake approved compensatory mitigation efforts. Therefore, wetland areas are not precluded from development outright. Nonetheless, current regulations are designed to preserve and enhance existing wetlands. As such, the complete development of wetland areas within the UGB will very likely never be realized. The projected wastewater flows throughout the study area at buildout conditions are based on the assumption that 50% of the wetland areas will ultimately be developed.

Of the improvements recommended herein, only the treatment plant expansion is likely to be affected by wetlands. The recommended alternative includes the construction of a new lagoon cell on the west side of the existing lagoons at the wastewater treatment plant. There are a few isolated wetland areas shown on the NWI map in the vicinity of the proposed lagoon. However, it appears that the lagoon can be cited to avoid these areas. As such, wetlands do not appear to pose a problem for the construction of the recommended improvements. Nonetheless, the site selection process should include a detailed wetland inventory and delineation of prospective sites. This work should precede the formal predesign effort for the proposed improvements.

WETLANDS LEGEND

- WETLAND
- CITY LIMITS
- URBAN GROWTH BOUNDARY



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CITY OF PHILOMATH
2003 SANITARY SEWER FACILITIES PLAN

LOCAL WETLANDS INVENTORY

FIGURE
2-2

JOB NUMBER
960.3130.0

2.2.10.3 Historical and Archaeological Sites.

Incorporated in 1882, Philomath has a rich history as one of the early settlements in the Willamette Valley. Several buildings and structures throughout town are included on the National Register of Historic Places. The selected alternative will likely not have any impact on these historical sites.

The mid Willamette valley was inhabited with the Calapooia people when the first western settlers arrived in the mid 1840's. It is also likely that prehistoric people inhabited the study area at one time. Remains of these cultures will likely be located adjacent to the Marys River. Therefore, a archaeological assessment may be required during the predesign phase, especially in areas adjacent to the river.

2.2.11 Threatened or Endangered Species.

A comprehensive inventory for threatened or endangered species in the study area has not been completed. Significant discussion and interest in anadromous salmonids exists in the Willamette Basin including the Marys River. The National Marine Fisheries Service (NMFS) is responsible for evaluating the "health" of different species and individual runs under the terms of the Endangered Species Act (ESA). The NMFS has defined the Upper Willamette Evolutionarily Significant Unit (ESU) as the Willamette basin upstream of Willamette Falls (Oregon City). This unit includes the Marys River.

On March 24, 1999, the NMFS listed as threatened all naturally spawned populations of spring chinook salmon in the Upper Willamette ESU. This listing impacts that reach of the Marys River adjacent to the study area which has been classified by the Oregon Department of Fish and Wildlife (ODFW) as providing rearing and migration habitat for spring chinook.

On March 25, 1999, the NMFS listed as threatened all naturally spawned populations of winter run steelhead in the Upper Willamette ESU. This listing also impacts that reach of the Marys River adjacent to the study area which has been classified by the ODFW as providing rearing and migration habitat for winter steelhead.

The NMFS issued the proposed 4(d) rules in December 1999 and the final rules in June 2000. The 4(d) rules are the mechanism under the ESA for protecting threatened as opposed to endangered species. A copy of the plain language Citizen's Guide to the 4(d) Rule for Threatened Salmon and Steelhead on the West Coast is included in **Appendix F**.

How the listings of steelhead and salmon will impact projects, including public wastewater projects, is not fully known at this time. A general consensus is that work that impacts riparian vegetation or work within the stream channels proper will come

under increasing scrutiny. To the extent feasible, alternatives that either do not impact or minimize impacts to riparian zones should be considered.

No other threatened or endangered species are known to reside in the study area. However, a biological inventory has not been completed. If the actual alternative constructed differs from the proposed alternative and results in construction at land sites not considered under this report, it will be necessary to perform both historical/archaeological and biological surveys to assure that impacts to threatened or endangered species do not occur.

2.3. Socio-Economic Environment

Growth within the study area will depend on socio-economic conditions within the City of Philomath. The following section contains a general discussion of economic conditions, trends, population, land use, and public facilities relating to both the study area and the City of Philomath.

2.3.1 Economic Conditions and Trends

Population growth and the resultant wastewater flows within the study area are linked to the economic conditions and trends of the City of Philomath and the greater Corvallis-Philomath metropolitan area. Growth in the City of Corvallis has to some extent met resistance from local residents. This has displaced some of the growth that may have occurred in Corvallis to Philomath. Philomath is an attractive town with a rural atmosphere that offers more affordable housing options than Corvallis. Philomath is to some extent evolving into a bedroom community for persons employed in Corvallis. With little significant industrial or commercial growth expected in the near future, this characterization is likely to remain valid throughout the planning period.

Philomath has experienced rapid levels of development during the past decade. This rapid level of development is anticipated to continue for the immediate future. Currently, the City believes most of the future development will occur in the northwest portion of town. The City is currently aware of plans for an 80 lot subdivision, a 30 lot subdivision, and a 50-60 lot subdivision in the northwest portion of town.

2.3.2 Historical Population & Growth Projections

2.3.2.1 Historic Population.

Population histories provide a tool for determining the future growth of the wastewater system. Much of the challenge in projecting wastewater flows and loading within the study area relates to the difficulty in accurately tracking or projecting actual populations. **Figure 2-3** shows the population trends for the City of Philomath from 1940 to the present.

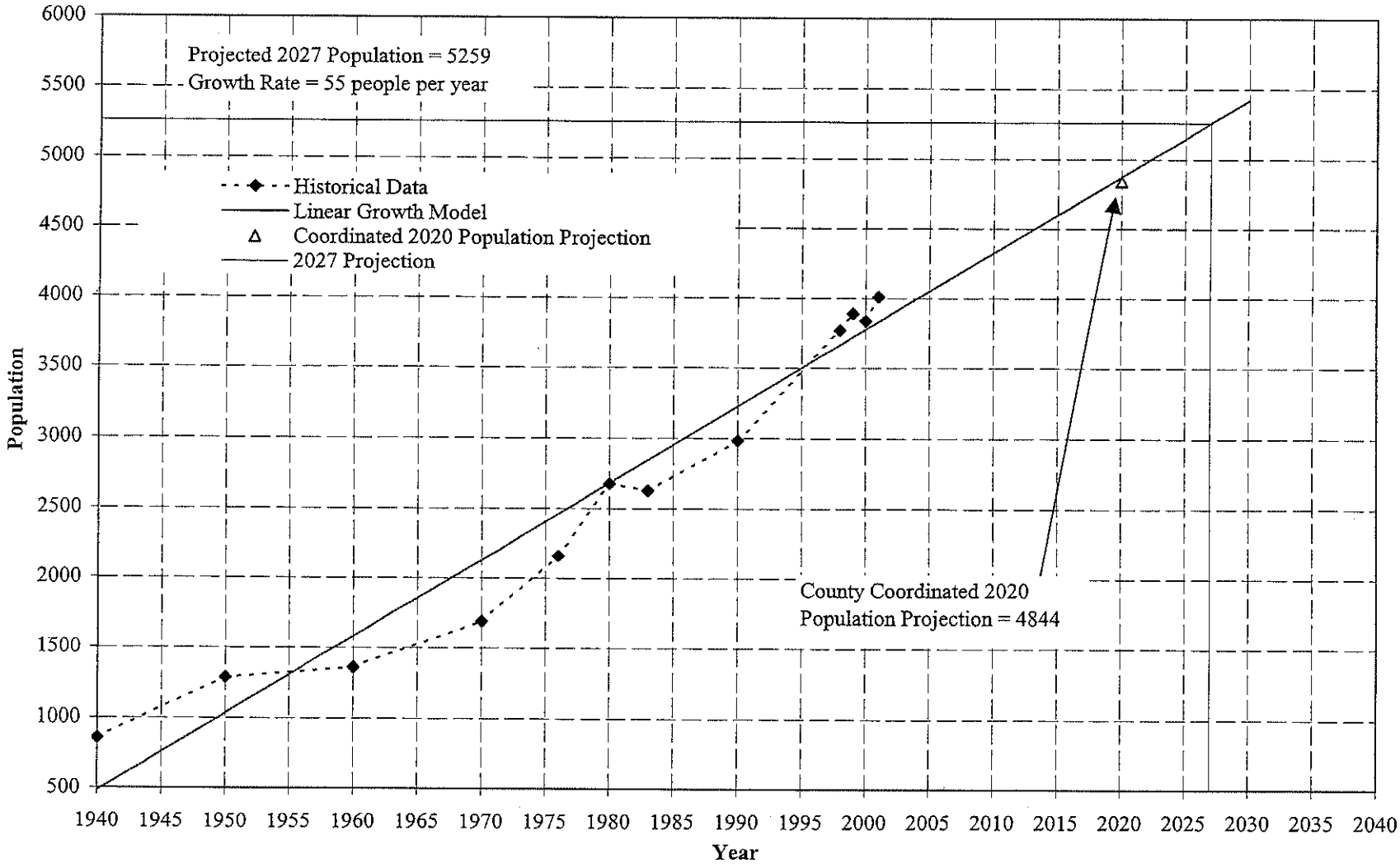
The population in Philomath has steadily increased from approximately 850 people in 1940 to over 4,000 people in 2002. The rate of growth has also increased as evidenced by the increasing slope of the line in **Figure 2-3**. Growth was particularly rapid during the 1970's when the residential areas east of Newton Creek were developed. During the 1960's and 1970's the lumber and logging businesses thrived, jobs were relatively plentiful in and around Philomath, and residential growth boomed. Another rapid growth spurt occurred in the 1990's when the area around Neabeack Hill was developed. The current population of Philomath is approximately 4,100 people.

2.3.2.2 Future Population.

In the review of Facilities Plans, the DEQ relies on the County population allocations as the 'coordinated number' for evaluating population projections. This number has been agreed to by the Department of Land Conservation and Development (DLCD), the Office of the State Economist, and Benton County and is based on documented population trends. DEQ has indicated that the City is obligated under ORS 195.036 to conform to the County population allocation in order for the Department to approve the Facilities Plan. Therefore, the Benton County population projections for Philomath will be used for facilities planning purposes through the year 2020.

In 1998 Benton County made population projections through 2020. The 2020 population allocation for Philomath was projected at 4,844. As described below, the planning period for wastewater treatment facilities is 20 years from the completion of the facilities. Based on past experience, the treatment plant improvements recommended in this plan will likely not be completed until approximately 2007. Therefore, the current planning period will end 20 years later in the year 2027. As such, population projections must be extended to 2027.

Figure 2-3
Philomath Population Projections



In order to project to the year 2027, a linear growth model was fit to a historical population data set. The model parameters were determined using a least squares regression method. These parameters were used to project the population out to year 2027. The linear growth model is shown in **Figure 2-3**. As shown in **Figure 2-3**, the populations passes through the county coordinated population projection for the year 2020. Based on this growth model the projected population for 2027 is 5260.

2.3.2.3 Anticipated Future Development.

Even with the loss of a substantial portion of the lumber industry, Philomath is likely to experience modest growth as a suburb of Corvallis. Corvallis is not only the home of Oregon State University but also is developing into a center for high technology businesses. Both the university and the growing high technology businesses offer new employment opportunities, and spin-off businesses may choose to locate in Philomath. With large tracts of industrial land available, Philomath seems poised to attract some of the spin-off high tech businesses.

As previously described, the City is currently aware of three subdivision projects that may create up to 170 new homes within the study area. These subdivisions are located in the northwest portion of town. During the planning period, the City anticipates future development to continue to be focused in this area.

2.4. Land Use Regulations

2.4.1 Comprehensive Plan

All of the land within the planning area is within the Philomath UGB. The City's Comprehensive Plan was adopted in 1983 and has been revised in 1990, 1993, and most recently in 2003.

2.4.2 Land Use Zoning

The planning area is made up of land in two general categories, namely land inside of City limits and land outside of the City limits but inside of the Urban Growth Boundary.

Land use zoning in the City of Philomath is comprised primarily of residential uses, although the Comprehensive Plan sets aside large areas for industrial development (approximately 800 acres), of which about 500 acres is presently undeveloped. Lesser amounts of land are designated for commercial, office, and public/open space uses.

The location of the UGB, City limits and land use zoning designations within the City of Philomath are shown in **Figure 2-4**.

The total areas contained under each zoning designation are listed in **Table 2-1**.

TABLE 2-1
Approximate Areas By Land Use Zone

Land Use Category	Area (Acres)
Low Density Residential (R1)	1,094
Medium Density Residential (R2)	228
High Density Residential (R3)	80
Commercial (C)	108
Light Industrial (LI)	124
Heavy Industrial (HI)	142
Industrial Park (IP)	628
Public (P)	154
TOTAL	± 2,558

a. Land Use within City Limits

The majority of the land within the City Limits is currently developed or partially developed. Much of the ongoing and anticipated development within the City is occurring outside the City Limits under deferred or delayed annexation agreements.

b. Land Use outside City Limits but within UGB

The majority of the land inside the UGB but outside the City Limits is undeveloped or underdeveloped. Of the undeveloped land inside the planning area and outside the City Limits, about 35 to 40% appears to be zoned for industrial use and the remainder for residential use. The majority of the industrial zoned land is either undeveloped or being utilized at less than the anticipated zone intensity.

2.5. Planning Period

Choosing a "reasonable" design period for which a utility system should be designed is a somewhat arbitrary decision. If the design period is too short, the public faces the prospect of demands exceeding capacity, requiring the system to be continually upgraded or replaced. For systems that do not lend themselves to economical incremental expansion, short design periods lead to excess expenditures of capital. Sewage collection and treatment facilities fall into this category, including collector and trunk sewers, for which DEQ suggests a design period of 30-50 years.

On the other hand, choosing a design period which is too long can lead to facilities with excess capacity which may never be needed if population growth does not occur at the

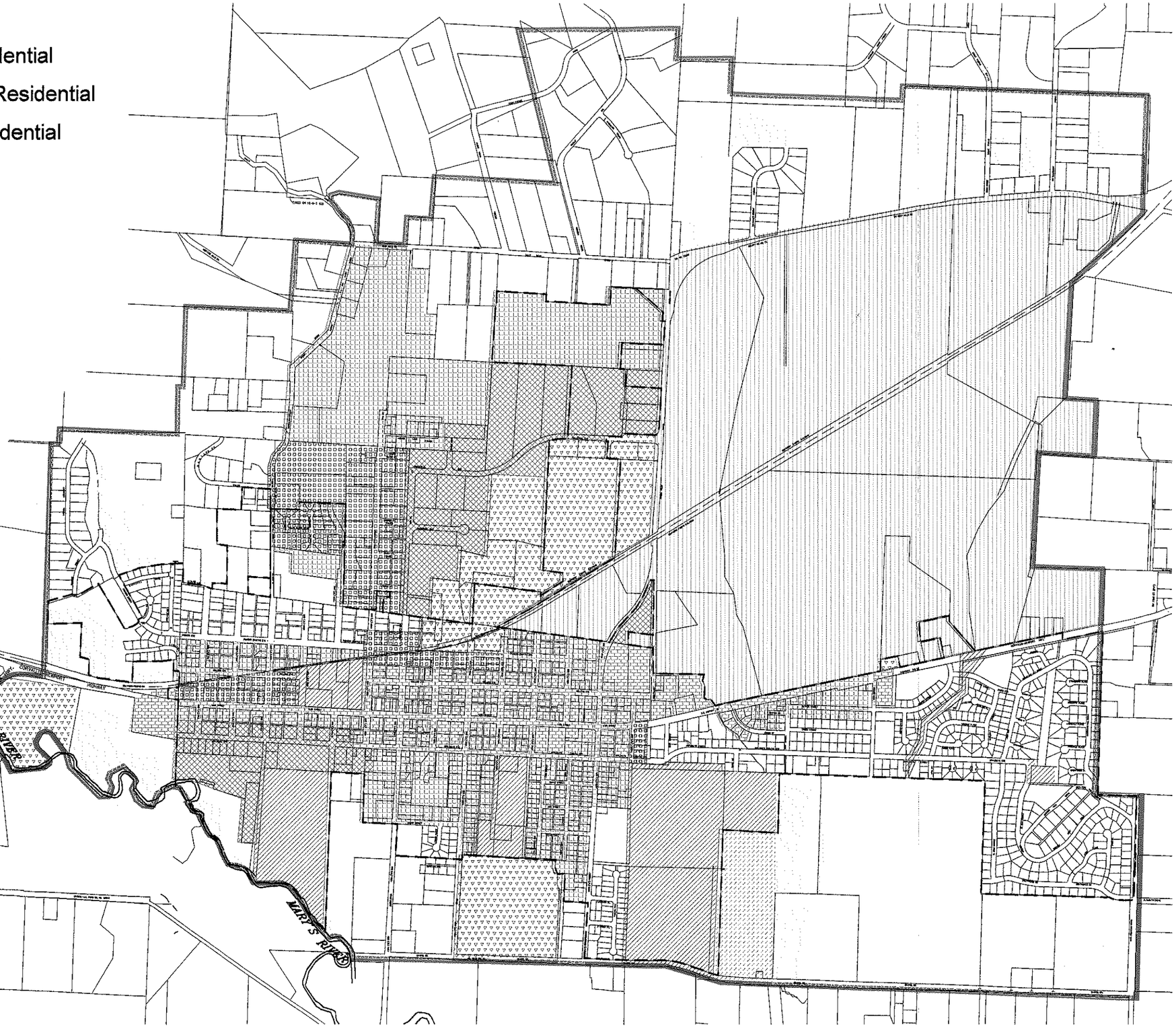
projected rates. Such facilities can place an economic burden upon the present population and may become obsolete before being fully used.

The Department of Environmental Quality (DEQ) has established 20 years as being the proper planning period for sanitary sewer system improvements. This report will evaluate the anticipated sewage collection, pumping, treatment and disposal needs during the 20 year planning period. The collection system piping will be planned for the ultimate development of land within the UGB based on current land use designations. Although this may result in capacities greater than those needed during the 20-year planning period, sewage collection lines are, by their very nature, unsuited for incremental expansion without extensive capital outlays. The planning period for proposed wastewater treatment systems will be 20 years from the projected completion of the improvements.

It should be recognized that projections into the future are subject to many variables and inaccuracies. Accordingly, it is recommended that the sewer system capabilities and needs be reviewed at five-year intervals and this report updated as appropriate.

ZONING LEGEND

- LDR Low Density Residential
- MDR Medium Density Residential
- HDR High Density Residential
- C Commercial
- LI Light Industrial
- HI Heavy Industrial
- IP Industrial Park
- PA Public Area
- FPA Future Public Area
- CITY LIMITS
- URBAN GROWTH BOUNDARY



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VERIFY SCALE
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IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DSN.	CB				
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DATE:	APRIL 03				

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CITY OF PHILOMATH
2003 SANITARY SEWER FACILITIES PLAN

ZONING MAP

FIGURE
2-4

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